Watershed Protection Planning

What is a watershed protection plan?

The quality of any water resource is a direct reflection of how we manage its watershed. Research shows that lakes, streams and groundwater in urbanizing watersheds are under the greatest peril, usually showing signs of stress after only 10% of the watershed is covered with impervious surfaces (roofs/pavement). Protecting or improving lakes or streams in urban areas requires careful planning and a local commitment to be good stewards of the land that drains to them.

A *watershed protection plan* is a framework of action steps for local governments and other stakeholders to follow that are designed to protect a specific water resource. Developing the plan combines the principles and practices of land use planning, stormwater management and nonpoint pollution control for a selected watershed.

What are the steps involved?

The steps to preparing a watershed protection plan can vary, depending on the characteristics of the watershed and the conditions encountered during the planning process. Below is a sample set of steps that should be followed in a watershed that spans more than one unit of government:

1. Establish intergovernmental partnership and watershed planning process/structure.
   - municipal resolutions
   - intergovernmental agreement

2. Inventory & evaluate existing:
   - water resource information and water quality monitoring data
   - drainage systems (flow paths, recharge/internally drained areas, floodlands, etc.)
   - natural resource features/land cover (woodland types, wetland types, environmental corridors, prime agricultural lands, grassland, impervious surfaces, etc.)
   - land uses (residential, commercial, industrial, agricultural, recreational, etc.)
   - land use plans (each governmental unit)
   - physical limitations to land development (high groundwater, shallow bedrock, steep slopes, gradient to sewer service, etc.)
   - zoning restrictions, natural resource protection regulations and preservation/mitigation standards (shoreland, floodplain, wetland, woodlands, steep slopes, environmental corridors, general)
   - regional stormwater management plans
   - erosion control & stormwater management ordinances and enforcement
   - other nonpoint pollution sources and local program efforts, including educational and monitoring programs (urban and rural)

3. Review and evaluate inventory data and develop preliminary watershed protection goals and objectives (by subwatershed if applicable).
   - base on the sensitivity and needs of the water resources
   - include reducing existing problems as well as prevention efforts
   - can be stated in numerical terms or guiding principle format
     - example goal: maintain predevelopment stream biodiversity and channel stability (prevent streambank erosion)
     - example objectives: preserve existing groundwater recharge areas, maintain predevelopment average daily temperatures or peak flows.

4. Evaluate available erosion control, stormwater management, and landscaping practices and recommend those that could help meet the stated goals and objectives.
   - research management practices, performance studies and local conditions
   - conduct pilot projects and monitor results

5. Develop and evaluate long-term watershed land use planning scenarios and project the impacts on the subject water resource.
   - follow guiding principles of watershed protection:
   - use the "simple method" of classifying streams by percent impervious cover (Sensitive = 0-10%, Impacted = 10-25%, Non-supporting > 25%)
   - develop zoning/impervious ratios from existing local development and project for future conditions
   - use SLAMM or other similar model to project pollutant loadings for "treated" and "untreated" planned land use scenarios
   - model for temperature impacts for cold water resources

6. Finalize watershed protection goals and objectives. Select the land use plan scenario that meets the goals and objectives and is supported by all governmental units.

7. Develop an implementation plan, including recommendations for:
   - new or modified zoning and other land use controls/regulations (example: impervious limits, clustering, exclusive agriculture or preservation zoning)
   - regional stormwater management practices, locations and preliminary designs
   - sewage treatment
   - easements/land acquisition priorities
   - information/education activities
   - technical standards and policies for construction site erosion control, stormwater management, street design and other development/on-site landscaping practices
   - progress tracking and stream monitoring
   - program funding sources and revenue/expenditure mechanisms
   - intergovernmental arrangements to coordinate/oversee plan implementation, review and update

8. Establish institutional mechanisms for plan implementation.

9. Implement plan.

10. Track progress and update plan on a regular basis.